Passive smoking and occurrence of asthma in children

Abdul-Karem Jasem albahadle *FICPS*.

Abstract

Background: Asthma, which is one of the most important chronic disease in pediatric age group, with increase incidence and mortality rate, there are two important factors for occurrence of It, genetic predisposition and triggering factors like cigarette smoking

Objective: to investigate the relation ship between cigarette smoking in the family and the occurrence of asthma in the children (as passive smoker).

Methods: across sectional study was done on 285 patients whose age beginning from few months to above 5yr. they were libeled as having asthma according to repeated attack of obstructive airway manifestation and positive family history of asthma associated with good response to bronchodilator. They were studied for the period between 7th of January to 20th of February 2008 who were attending the pediatric department in AL.kadhmiya teaching hospital, same number of children 285 were taken control group who are free from any respiratory problem

Results: males were slightly more than female in affected children the percentage was 58.25% and 41.75% respectively...**Group A**-75% of affected children had positive family history of smoking while in control group 21.43% had positive family history of smoking .in **Group B** family history of smoking were found in 73.79% of affected and 21.49% of control children . **Group C** show that67.31% of affected children had positive family history of smoking and 28.57% of control children do so. in **Group D** 65.96% of affected children and 35.56%of control had positive family history of smoking .in **Group E** and **Group F** positive family history of asthma in affected children were 69.45% and 70.97% respectively.

In all age group there is significant relation between smoking and occurrence of asthma since p value was < 0.05

Conclusion: The study expresses the strong relation ship between occurrence of asthma and smoking as one of the important triggering factor for appearance of asthma

Key words: asthma, children, passive smoking

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Introduction

Asthma is leading cause of chronic illness in childhood [1] .despite recent advances in understanding of pathophsiology and treatment of asthma the condition continue to have significant medical and economic impacts Worldwide [2].Eigty to ninety percent of children have their fiest episodes by 4-5 years However episodes might occur at any age [3].

Dept. Pediatric, College of Medicine, Al-Nahrain University.
Address Correspondences to: Dr. Abdul-Karem Jasem albahadle
Email: k.albahadle@yahoo.com
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Most severely affected children have an onset of wheezing during the First year of life [4].irritability or hyper reactivity of the airway although not limited to asthmatic patients, appears to be an intrinsic part of the disease and is present to some degree in almost all asthmatic individuals, this hyper responsiveness manifest itself as bronchconstriction fallowing exercise, on natural exposures to strong odors or irritant fumes such as Tobacco smoke [5]

This tobacco smoke usually occurs as passive smoking, which is breathing in smoke from other people's cigarettes or pipe. smoke that is breathed out by smoker is called exhaled main stream

smoke the smoke drifting from the burning end of cigarette is called side stream smoke .side stream smoke tend to remain in a room longer than main stream smoke.[6].

Both asthma and respiratory infection are increased in children whose parents smoke. Tobacco smoke also triggers asthma attacks and makes childhoods asthma more sever than it would other wise be [7].

Patients and methods

A case control study has been applied from 7th of January 2007 to 20th of February 2008 with standardized form is used to report basic data on 285 asthmatic child at Al-kadhimiya Teaching Hospital they were diagnosed according to family history of asthma as genetic predisposition, repeated attack of wheeze and good response to bronchodilator therapy ,in addition to exclude any child with repeated attack of respiratory problem due to other causes like (Immunodeficiency , congenital anomalies of respiratory, gastrointestinal and cardio- -vascular system) . Also 285 children were randomly chosen from the out patient clinic of the same hospital, which were free from any respiratory problem, as control group, both affected and control children were divided into six groups according to age.

groupA-their age were below one year and above tow months .
group B-their age were 1yr- 2yr .
group C-their age were 2yr -3yr .
group D-their age were 3yr-4yr .
groupE-their age were 4yr-5yr .
group F-their age were above 5yr and below twelve years .

They were matched for age, sex, and residence, the questionnaire interviewing the parent of asthmatic and control children covered the history of smoking habit, age, and gender .The chi-square test was employed to test differences between proportions .a p value < 0.05 were considered significant.

Results: affected and control group were divided into six groups according to age as shown in (Table 1).

Table 1: distribution of affected and control according to age group

Age group	Affected	control
0-1 yr	16	14
>1-2 yr	103	107
>2-3 yr	52	49
>3-4 yr	47	45
>4-5 yr	36	38
> 5 yr	31	32
Total	285	285

Males were slightly more than female in asthmatic children, the percentage was58.25% and 41.75% respectively. While female were slightly more than male in control children the percentage was 63.16% and 36.84% as shown in (Table 2).

Table 2:distribution of sex according to age group in affected and control children

Age group	Affected		control	
	Male	female	Male	female
0-1 yr	9	7	6	8
>1-2 yr	56	38	36	71
>2-3 yr	29	23	19	30
>3-4 yr	25	22	15	30
>4-5 yr	21	15	19	19
>5 yr	17	14	10	22
Total	166	119	105	180
percentage	58.25%	41.75%	36.84%	63.16%

Group A: show significant effect of passive smoking on occurrence of asthma since The percentage of affected children who had family history of smoking were 75% While it is 21 % in control children and *p* value <0.001 as shown in (Table 3).

Table 3: passive smoking in affected and control children in group A. (age group below one year.

Passive smoking	Affected		control		Total		Significance
	No.	%	No. %		No. %		X2=8.57 *p*<0.001
Yes	12	75%	3 21.43%		15 50%		
No	4	25%	11 78.57%		15 50%		
total	16 100%		14 100%		30 100%		

Group B: large number of affected and control children were found in this age group, they form 36.14% and 37.54%, of the studied sample respectively .they show significant relation ship between smoking and occurrence of asthma since 73.79% of affected children had positive family history of asthma compare to 21.49% in control children and *p*<0.001 as shown in table 4.

Table 4: passive smoking in affected and control children in group B. (age group 1-2 yr).

Passive smoking	Affected		Control		Total		Significance
	No.	%	No.	%	No. %		
Yes	76 73.79		23 21.49		99 47.14		X2=57.63 p <0.001
No.	27 26.21		84 78.51		111 52.86		
total	103	100	107	100	210 100		

Group C: affected children form 18.24% of total number in this age group .67.31% of them had positive history of smoking. While control
Children form 17.19 % in this group, 28.57 % of them had positive family history of smoking and p<0.001.meaning significant relation ship between smoking and asthma as shown in table 5.

Table 5: passive smoking in affected and control children in group C.(age group 2-3yr).

Passive smoking	Affected		Control		Total		Significance
	No.	%	No.	%	No. %		
Yes	35	67.31	14	28.57	49	48.51	X2=15.16 p <0.001
No	17	32.69	35	71.43	52	51.49	
Total	52	100	49	100	101	100	

Group D: also show significant relation ship between passive smoking and asthma because *65.96 %* of affected children and 35.56% of control
Children they had positive family history of smoking and p<0.0001, as shown in table 6.

Table 6: passive smoking in affected and control children in group D (age group 3-4yr).

Passive smoking	Affected		Control		Total		Significance
	No.	%	No.	%	No.	%	
Yes	31	65.96	16	35.56	47	51.09	X2=22.93 p <0.0001
No	16	34.04	29	64.44	45	48.91	
Total	47	100	45	100	92	100	

Group E: total number of affected children were 36(12.62%).69.45 % of them had positive family history of smoking comparable to36.84 % of control children, whose number was 38 (13.34%) and p<0.001. as shown in (Table 7).

Table 7: passive smoking in affected and control children in group E (age group 4-5yr).

Passive smoking	Affected		Control		Total		Significance
	No.	%	No.	%	No. %		
Yes	25	69.45	14	36.84	39	52.70	X2=7.88
No	11	30.55	24	63.16	35	47.30	*p* <0.001
total	36	100	38	100	74	100	

Group F : total number of affected children were 31 (10.88%).70.97% of them are passively smoker ,while 34.37% of control children ,whose number was 32(11.23 %) , are passively smoker as shown in table 8 and $p<0.001$ which is significant.

Table 8: passive smoking in affected and control children in group F (age group over 5 yr). X2=8.45

Passive smoking	Affected		Control		Total		Significance
	No.	%	No.	%	No.	%	
Yes	22	70.97	11	34.37	33	52.38	*p* <0.001
No	9	29.03	21	65.63	30	47.62	
Total	31	100	32	100	63	100	

Table 9 show significant relation ship between passive smoking and asthma .when comparison had been donning between tow groups (affected 285 and control 285) regarding family history of smoking and occurrence of asthma since $p<0.001$.

Table 9: passive smoking in affected and control children .

	Smoking status		Total
	Smoking	non smoking	
Affected			
Count	199	86	285
%within affected children	69.8%	30.2%	100%
%within smoking status	70.6%	29.9%	50%
% of total	34.9%	15.1%	50%
Control			
Count	83	202	285
%within affected children	29.1%	70.9%	100%
%within smoking status	29.4%	70.1%	50%
% of total	14.6%	35.4%	50%
Total			
Count	282	288	570
%within affected children	49.5%	50%	100%
%within smoking status	100%	100%	100%
% of total	49.5%	50.5%	100%

Discussion

This study has tried to examine the effect of smoking in the family (passive smoking) on occurrence of asthma as one of important triggering factor.

In the presence of hyper reactive airway, various allergic and non specific stimuli initiate the bronchospasm and inflammatory response which include cigarette smoking [8] .Family history of passive smoking seems to be main risk factors for the Development of asthma [9].

This study show significant effect of passive smoking on triggering the occurrence of asthma in all age group, this finding is in agreement to that reported by Karadaq who found that the proportion of children with acute asthma attacks who were exposed to passive smoking was high making 80% [10] . Similar result was obtained from another study done by Maria A.Mascola. Which show that measuring the level of urinary nicotine correlated to the development of asthma in children of smoking mothers [11]. Also now a study of 718 people in Finland show how second hand smoke causes asthma in children [12]. It is now illegal in South Australia to smoke in a car while a child is also in the car [13].

It is well known the effect of smoking on occurrence of asthma in children and other disease in adult .This habit can be put under control especially when the family had genetic predisposition to asthma, by family education through different ways, and prevent smoking in some in common places by the goven.

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